

13/Response
P. Walker
2-26-03PATENT
Docket No. 150.00720102

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

M. Brunson

5/20/03

Applicant(s): Cobbley et al.) Group Art Unit: 2829
)
 Serial No.: 09/651,217) Examiner: Scott Geyer
 Confirmation No.: 2006)
 Filed: 30 August 2000)
 For: METHODS FOR USE IN PACKAGING APPLICATION USING AN FEB 19 2003
 ADHESIVE COMPOSITION (As Amended)

FAX RECEIVED
TECHNOLOGY CENTER 2800RESPONSE UNDER 37 CFR § 1.116

Assistant Commissioner for Patents
 BOX AF
 Washington D.C. 20231

Dear Sir:

The Final Office Action mailed November 20, 2002 has been received and reviewed. No claims have been amended. The pending claims are claims 1-14, 22-64, 83-89 and 91. Reconsideration and withdrawal of the rejections are respectfully requested.

Information Disclosure Statement

The Examiner indicated that the information disclosure statement filed 5 September 2002 failed to comply with 37 CFR 1.98(2). This application is a divisional of U.S. Patent Application Serial No. 09/065,944, filed April 24, 1998, which is a Continuation in Part of 08/916,629, filed August 22, 1997. In accordance with 37 C.F.R. § 1.98(d), copies of documents previously cited by or submitted to the U.S. Patent and Trademark Office in connection with Applicants' prior applications listed above are not required to be resubmitted. Therefore, the cited art was not included in the Information Disclosure Statement mailed 5 September 2002.

The Examiner also indicated that the cited pending U.S. application, 08/916,629, was not listed on the supplied form PTO-1449. The cited application was provided as part of a list in the body of the Information Disclosure Statement mailed 5 September 2002 and a copy of the application was also submitted.

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In addition, Applicants also provide herewith a supplemental information disclosure statement. Applicants respectfully request consideration of the supplemental information disclosure statement by the Examiner.

The 35 U.S.C. §103 Rejection

The Examiner substantially maintains the rejections as presented in the previous Office Action, except for allowed claims 11-14 and 91. As such, Applicants' remarks in response to the previous Office Action (i.e., the Office Action mailed 5 June 2002) are equally applicable herein as Applicants continue to traverse such rejections, except for those of allowed claims 11-14 and 91. Further, although Applicants consider the previous remarks sufficient to rebut the Examiner's position with respect to the pending claims, the following remarks are provided in response to the Response to Arguments portion of the Final Office Action mailed 20 November 2002.

Examiner indicates that independent claims 1, 22, 34, 46, 53, 57, 62, and 83 "all recite variations of a method of bonding a die (or wafer) to a lead frame using an adhesive, and in particular, the claims recite an 'instant setting adhesive'." The Examiner asserts that claim 1 is fully met by the applied art since Farnworth et al. recite the limitation of bonding a wafer (i.e. die) to a lead frame except for the particular adhesive used. The Examiner further asserts that even though Farnworth et al. does not recite specifically an "instant setting adhesive", Kato et al. was added to Farnworth et al. to show that "other types of adhesives used that are known on *[sic]* the art and that one of ordinary skill would certainly be apprised of as to other limitations of the various independent claims". Applicant respectfully traverses the rejections.

With respect to independent claims 1, 22, 34, 46, 53, 57, 62, and 83, Applicants respectfully submit that the cited documents fail to support a proper *prima facie* case of obviousness. For example, the cited references fail to provide a sufficient suggestion or motivation to modify or combine Farnworth et al. and Kato et al. The Examiner asserts that while Farnworth et al. does not specifically recite an "instant setting adhesive", Kato et al.

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provides other types of adhesives used that are known in the art. Applicants respectfully submit that simply having knowledge of other adhesives does not provide a suitable suggestion or motivation for combining the teachings of Farnworth et al. and Kato et al.

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teaching of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998). Farnworth et al. fails to teach or suggest that there is a problem to be solved with respect to the adhesives used in the invention. The Office Action also fails to identify any problems or concerns with the use of the adhesive of Farnworth et al. that are overcome by the use of the adhesive of Kato.

The Office Action also fails to identify any problems or concerns with the use of the thermoplastic or the thermoset adhesive that are overcome by the use of the adhesive of Kato. Applicants submit that one skilled in the art would appreciate that the adhesive of Farnworth et al. would allow a die to be quickly adhered to a leadframe. As such, one skilled in the art would not be motivated to look to a different adhesive.

In addition, with respect to claim 1 the cited documents fail to provide for a reasonable expectation of success. Kato provides heat-resistant instant adhesive compositions comprising a radical polymerizable alpha-cyanoacrylate, but fails to indicate that these adhesives can be used in an adhesive pattern configuration, e.g., one or more zones essentially free of the instant setting adhesive composition, as recited in claim 1. Kato lacks any teaching at all concerning whether such an adhesive of Kato can be applied with some zones being essentially free of the adhesive. In fact, U.S. Patent No. 4,720,513 to Kameyama et al., cited by the Examiner, indicates that "α-cyanoacrylate adhesive is characterized in that it is readily flowable with low viscosity, having the property of being easily used for penetration adhesion or automatic coating" (Col. 1, lines 24-27). Thus, one skilled in the art would appreciate that the low-viscosity characteristic of α-cyanoacrylate adhesives would not allow for the formation of an adhesive pattern configuration,

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e.g., one or more zones essentially free of the instant setting adhesive composition, as recited in claim 1.

With respect to claim 22, the Examiner asserts that Kameyama et al. teach a thixotropic index for an instant setting adhesive in the range of 3 and greater. The Examiner then asserted that it would have been obvious to a person of ordinary skill in the art to modify the method of Farnworth et al. with an instant setting adhesive as taught by Kato et al., where "the thixotropic index of such an adhesive is an inherent property of such an adhesive and would be dependent upon which adhesive was chosen to bond the die to the lead frame". Applicants respectfully traverse these assertions.

Applicants respectfully submit that the Examiner has offered no suggestion or motivation as to why one skilled in the art would modify the instant setting adhesive of Kato et al. with the thixotropic index of Kameyama et al. In addition, "[t]o establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

Kato et al. fails to teach or suggest that the instant setting adhesive can have thixotropic index in the range of 3 or greater. In fact, Kameyama et al. indicates that " α -cyanoacrylate adhesive is characterized in that it is readily flowable with low viscosity, having the property of being easily used for penetration adhesion or automatic coating" (Col. 1, lines 24-27). Nothing in Kameyama et al., however, makes clear that the missing descriptive matter is necessarily present in the instant setting adhesive of Kato et al. In addition, nothing in Kato et al. would provide a teaching or a suggestion to one skilled in the art that the instant setting adhesive of Kato et al. could have a thixotropic index in the range of 3 or greater, as recited in Kameyama et al. As such, there is no suggestion or motivation to combine the documents as suggested by the Examiner.

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With respect to claim 42, the Examiner asserts that "Farnworth et al. teach the adhesive layer may be formulated to function as an additional passivating/insulating layer for protecting the wafer and the packaged dies (column 3, lines 11-14)". Applicants, however, submit that Farnworth et al. must be considered as a whole. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n5, 229 USPQ 182, 187 n5 (Fed. Cir. 1986). In considering Farnworth et al. as a whole, one skilled in the art would appreciate that the materials used to encapsulate the chip 10 are distinct from the adhesive layer used to bond the die and leadframe. For example, Farnworth recites that the "semiconductor package 34 includes an encapsulating material 36 which encapsulates the chip 10 and all but a terminal portion 38 of the lead fingers 28" where the "encapsulating material 36 is typically formed of an insulative plastic material" (Col. 4, lines 20-25). So, Farnworth et al. specifically recites an encapsulating material that is separate and distinct from the "adhesive" that the Examiner suggests be used as the encapsulant.

Applicants respectfully request reconsideration and allowance of claims 1-10, 22-64, and 83-89.

Allowable Subject Matter

Applicants thank the Examiner for allowing claims 11-14 and 91.

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Summary

It is respectfully submitted that the pending claims 1-14, 22-64, 83-89 and 91 are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
Cobbley et al.

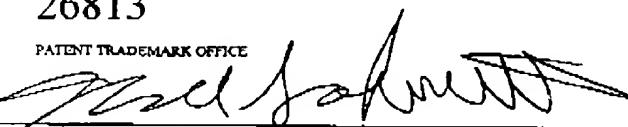
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Date

19 Feb 2003**CERTIFICATE UNDER 37 CFR §1.8:**

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, Box AF, Washington, D.C. 20231, on this 19th day of February, 2003, at 3:40PM (Central Time).

By: Sara E. Olson
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